

## CLAIMS

1. A semiconductor device comprising at least one transistor formed on a surface of III-V Compound single crystal substrate,

wherein said III-V Compound single crystal substrate has a distribution of lattice constant which satisfies the following:

$$D/d_0 \leq 4 \times 10^{-5}$$

whereby D is defined as the value of difference between the maximum and minimum values of lattice constant within the surface of said III-V single crystal substrate in a region the size of said III-V single crystal substrate, and  $d_0$  is defined as the lattice constant at room temperature of III-V single crystal having the theoretical composition of III-V Compound single crystal.

2. A semiconductor device according to claim 1, wherein the theoretical composition is the stoichiometric composition.

3. A semiconductor device according to claim 1, wherein said at least one transistor is at least one field effect transistor.

4. A semiconductor device according to claim 3, wherein said at least one field effect transistor is a MESFET.